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XLVIII.—*On Mammals from Northern Angola collected by Dr. W. J. Ansorge.* By OLDFIELD THOMAS.

DURING 1903 the well-known collector Dr. W. J. Ansorge, to whom the British Museum is already indebted for series of specimens from British East Africa, Uganda, and Nigeria, made a collecting-trip to Northern Angola, and obtained about two hundred specimens belonging to forty-six species, and of these a complete set has been acquired for the Museum.

The mammalogy of Angola has hitherto remained almost entirely in the hands of the Portuguese, as represented—most admirably—by Prof. Barboza du Bocage in Lisbon and by M. Anchieta and other collectors in the country under consideration. Thanks to the enlightened generosity of Prof. Bocage many institutions, and notably the British Museum, had received specimens representing the species discovered in Angola by the Portuguese naturalists, and on these specimens such comments on the Angolan fauna as have been made by Gray, de Winton, myself, and others have been based.

But these specimens, valuable as they have proved to be, have been all preserved in spirit, and the freshly made skins obtained by Dr. Ansorge are therefore of very great interest for comparison with similarly made specimens from other regions of Africa.

Complete as have been Prof. Bocage's researches on the *Ann. & Mag. N. Hist.* Ser. 7. Vol. xiii. 28

subject, the present collection contains a fair number of species not included in his lists, while, owing to my having been able to compare the remainder directly with typical specimens from other localities, I have found it necessary to describe several of those he mentions as local species or subspecies.

Dr. Ansorge has therefore to be congratulated on the considerable number of new and interesting forms which his collection has enabled me to discriminate.

1. *Miopithecus talapoin*, Erxl.

♂. 200. Canhoca.

2. *Rousettus collaris*, Ill.

♂. 40. Pungo Andongo.

This specimen has a small third upper molar on each side.

3. *Epomophorus pusillus*, Peters.

♂. 195, 196. Canhoca.

4. *Epomophorus* sp.

♂. 70. Pungo Andongo.

♀. 143. Braganza.

5. *Epomophorus* sp.

♂. 69; ♀. 68, 124. Pungo Andongo.

♀. 138. Braganza.

6. *Hipposideros caffer*, Sund.

♀. 5. Ambaca.

7. *Hipposideros Commersoni* gigas, Wagn.

♀. 201. Canhoca.

A note on the subspecies of *H. Commersoni* has been recently published*.

8. *Nycteris* sp.

♀. 58. Pungo Andongo.

Closely similar, both in size and colour, to the type of *N. aethiopica luteola*, Thos., from British East Africa, but from the single skin I do not venture definitely to assign it to that form.

* Ann. & Mag. Nat. Hist., May 1904, p. 384.

9. *Pipistrellus nanus*, Pet.

♂. 71, 72; ♀. 73, 74, 84. Pungo Andongo.
 ♂. 139; ♀. 145. Braganza.

10. *Myotis Bocagei*, Peters.

♂. 140, 148; ♀. 146, 147. Braganza.

These specimens, actual topotypes, are of a far brighter colour than those from the Cameroons, which, in the absence of Angolan examples, we had hitherto treated as the true *Bocagei*.

The Cameroon form would appear to represent a special subspecies, as follows :—

Myotis Bocagei cupreolus, subsp. n.

Essential characters as in true *M. Bocagei*, but the colour much darker, owing to only the terminal millimetre instead of 2–3 mm. of the dorsal hairs being reddish; the reddish is also of a more coppery tone. A blackish patch at the base of each humerus. Under surface dark smoky brown, the hairs being dark smoky with brownish tips; inguinal region not or scarcely lighter. In true *Bocagei* the under surface is pale buffy brown.

Dimensions of the type :—

Forearm 39 mm.

“Head and body 60”; “tail 40”; “ear 15.”

Skull: greatest length 15.

Hab. Efulen, Bulu Country, Cameroons.

Type. Male. B.M. no. 3. 2. 4. 6. Collected 14th August, 1901, by Mr. G. L. Bates.

11. *Miniopterus Schreibersi*, Kuhl.

♀. 202, 203. Golungo Alto.

12. *Nyctinomus limbatus*, Pet.

♂. 215. Cunga.

♀ (in spirit). 2. Loanda.

13. *Taphozous mauritanus*, Geoff.

♀. 1. Loanda.

14. *Crocidura (Croc.)* sp.

♂. 20; ♀. 17. Pungo Andongo.

♀. 156. Braganza.

15. *Viverra civetta*, Schr.

204. Golungo Alto.

♀. 124. Pungo Andongo.

16. *Genetta* sp.

♀ (young). 180. Braganza.

♀ (young). 210. Golungo Alto.

17. *Nandinia binotata*, Gray.

205. Golungo Alto.

18. *Herpestes galera*, Erxl.

209. Golungo Alto.

19. *Herpestes albicaudus loandæ*, subsp. n.

♀. 23. Pungo Andongo.

"Caught by native hunting dogs." "Native name *mabeku*."—*W. J. A.*

The animals usually referred to *H. albicaudus*, ranging from Senegal to Natal, are very uniform in colour, with the striking exception of the condition of the tail, which may be either black or white in the same locality. Broadly speaking, the forms from N.E. Africa and Arabia, representing *leucurus*, Hempr. & Ehr. (syn. *albescens*, Geoff., *abu-wudan*, Fitz.), are paler and more buffy, while those from West Africa, East Africa, and further south are more heavily blackened. The skulls show the former to be rather smaller than the latter.

But in the dimensions and structure of the last lower molar there are such striking and yet locally constant differences that it is impossible to regard as identical all



a. Last lower molar, left side, of *Herpestes albicaudus leucurus*.

b. Ditto of *H. a. loandæ*.

the forms hitherto referred to the one species *H. albicaudus*. Treating them for the present as subspecies, the animal I should call *H. a. leucurus* has the tooth small and narrow

(6×3.7 mm.), low (height of hinder side of main antero-internal cusp 3.2 mm.), and simple, the antero-internal cusp not or scarcely divided into its constituent paraconid and metaconid, the hinder rim of the talon little developed, and with but one low cusp on the centre of the talon (see fig. *a*).

The opposite extreme to this is shown by my *Herpestes grandis* (figured P. Z. S. 1889, pl. lxii.), where the tooth is very large (8.1×4.7 mm.), high, and complicated, the anterior trefoil well developed, and the talon with a high posterior rim subdivided into cusps behind, and with two cusps on the talon, one on its outer edge and one in its centre.

East-African specimens have the tooth large (7.4×4.5 mm.), but lower than in *grandis*, the paraconid and metaconid distinct, the rim of the talon well defined, but not divided into cusps posteriorly, and with one large cusp on the antero-external part of the talon. This form I would propose to call *H. a. ibeanus**.

In specimens from Guinea, representing *loempo*, Temm., and perhaps the original Senegalese *albicaudus*, *m*₂ is of medium size (7×4.2 mm.), low, with the metaconid distinct but lower than the paraconid, the median outer cusp high, nearly equal to the low protoconid, the posterior rim of the talon high and irregularly notched.

Finally, in the North-Angolan form (*H. a. loandæ*, subsp. n.) the tooth is large (7.5×4.8 mm.), but its cusps and crenulations are remarkably low and indistinct, the paraconid practically coalesced with the metaconid, the median outer cusp low and rounded, continuous with a low transverse crest running transversely across the tooth, posterior part of talon narrow, its rim formed of two low cusps (fig. *b*).

The skull of this mungoose is large, and all the teeth are heavy and well developed; but in the single example there

* Subsp. n. Colour intermediate between the pale North-eastern and darker Western forms, though nearest the latter, the general tone of the fur, apart from the dorsal black hairs, greyish isabella. Tail white in the type.

Dimensions of an adult skull (not the type), collected by Dr. J. W. Gregory at Kibwezi, Kikuyu:—

Basal length 100 mm.; zygomatic breadth 51; front of canine to back of *m*² 42; breadth of palate outside *m*² 33.

Dimensions of teeth in the type: greatest diameter of *p*¹ 10, *m*² 8.4, *p*₄ 7.9, *m*₁ 8.3, *m*₂ 7.4.

Hab. East Africa. *Type* from Athi-ya-Mau, Mombasa-Uganda Railway.

Type. Immature male. B.M. no. 99. 10. 14. 2. Presented by C. S. Betton, Esq.

The object of selecting an immature specimen as the type is to have one with the diagnostic tooth unworn.

is no trace on either side of the small anterior lower premolar, a peculiarity not occurring in any other specimen of the group.

The general colour is dark grizzled grey, with black limbs and white tail.

Dimensions of the type (measured in the flesh):—

Head and body 620 mm.; tail 506; hind foot 135; ear 47.

Skull: nasals 26 (in middle line) \times 10; interorbital breadth 23; breadth of palate across outer corners of m^1 35.5; front of canine to back of m^2 41; greatest horizontal diameter of p^4 10, m^2 8.3, p_4 8.2, m_1 8.9, m_2 7.5.

Hab. Pungo Andongo, 1200 m.

Type. Subadult female. B.M. no. 4. 4. 9. 37. Original number 23. Collected 6th June, 1903.

The above division into "subspecies" is, of course, only provisional, until such time as sufficient material is available for the true relations of the different forms to be made out. Probably the north-eastern type, paler in colour, rather smaller, and with very small m_2 , should in any case be looked upon as a distinct species. Whether it overlaps the larger and darker animal remains to be seen.

20. *Pæcilogale albinucha*, Gray.

178. Marimba, Jinga Country.

♂. 179. Bange, Ngola, Jinga Country.

21. *Sciurus Nordhoffi*, Du Chaillu.

♂. 199. Canhoca.

206. Golungo Alto.

22. *Sciurus annulatus*, Desm.

♂. 198. Canhoca.

23. *Funisciurus congicus*, Kuhl.

♂. 197. Canhoca.

24. *Funisciurus congicus olivellus*, subsp. n.

♂. 214. Cunga.

In his classical paper on the mammals of Angola, Prof. du Bocage stated that the squirrels he referred to *Sciurus congicus*, Kuhl, presented several different types of coloration, and I am inclined to think that these are so different as to deserve recognition by name. For the moment I shall treat them as subspecies of *congicus*, though I think it probable that when

more localized specimens are brought together some of their ranges will be found to overlap without intergradation taking place, in which case they will have to be considered as species.

The three forms I recognize may be briefly indexed as follows:—

| | |
|---|-------------------|
| Colour dark olivaceous, lateral lines blackish. Tail dull brownish | <i>congius.</i> |
| Colour light yellowish olivaceous, lateral lines scarcely darkened. Tail-hairs ringed with black and yellowish. | <i>olivellus.</i> |
| Colour dull fulvous, the white stripes very broad. Tail-hairs orange at their bases | <i>flavinus.</i> |

The Canhoca specimen of Dr. Ansorge agrees closely in its general dull tone and the blackness of the outer dark line with Kuhl's type, still in the British Museum collection. A specimen received from the Lisbon Museum, and labelled as from Caconda, is also similar.

Funisciurus congius olivellus, subsp. n.

General colour clear yellowish olivaceous, almost approaching Ridgway's "olive-yellow." This colour is yellower on the sides of the nape and on the rump, darker on the back. White stripe well defined, but narrow, the body-colour on each side of it scarcely darkened. Flanks abruptly lighter. Belly white, not sharply defined laterally. Cheeks light, an indistinct darker line running through the eye. Limbs externally like flanks, internally like belly; upper surface of hands and feet yellow. Tail-hairs ringed with pale yellow and black, the bases, middles, and tips of the former colour separated by two rings of black.

Dimensions of the type (measured in the flesh):—

Head and body 165 mm.; tail 180; hind foot 36; ear 14.

Hab. (of type). Cunga.

Type. Adult male. B.M. no. 4. 4. 9. 45. Original number 214. Collected 1st February, 1904.

The Museum contains another example of this form labelled as from the Quanza River.

Funisciurus congius flavinus, subsp. n.

S. congius, var. *flavivittis*, Bocage (not *S. flavivittis*, Peters).

General colour strongly flavescent, approaching orange on the sides of the neck and on the rump. White stripes very broad and prominent, the dorsal colour between them suffused with blackish; lateral lines outside them well marked, blackish. Under surface buffy yellow, as are also the inner

sides of the limbs; upper surface of hands and feet orange-yellow. Sides of head and edges of ears dull buffy whitish, a faint darker line running backwards from the whiskers and another through the eyes. Tail-hairs deep orange for their basal half, then with a broad subterminal bar of black, their tips buffy yellow; terminal hairs of tail tipped with black.

Dimensions of the type (measured in spirit before skinning):—

Head and body 168 mm.; tail 141; hind foot 39; ear 14.

Skull: greatest length 40; basilar length 31; palate length 16; length of upper molar series (excluding minute anterior premolar) 6.2.

Hab. (of type). Capangombi, southern plateau of Angola.

Type. Male. B.M. no. 92. 1. 9. 6. Received in exchange from the Lisbon Museum.

Two specimens from "Angola," collected by Mr. Monteiro, and some imperfect skins from the Cunene River, collected by C. J. Andersson, may be referred to this form.

25. *Otomys irroratus*, Bts.

♂. 29. Pungo Andongo.

♀. 163. Braganza.

26. *Tatera valida*, Bocage.

♂. 184, 193. Braganza.

♂. 105, 125, 126, 127. Pungo Andongo.

27. *Cricetomys Ansorgei*, sp. n.

♂. 39; ♀. 18, 22. Pungo Andongo.

♂. 211; ♀. 212. Golungo Alto.

Size even larger than in *C. gambianus*. General colour drab-brown, paler than in true *gambianus*, darker than in the southern form of that animal. Under surface of a similar colour, but little paler than above, the throat and inguinal region alone more whitish. Young specimens, however, have their belly whitish. Cheeks paler than body, "wood-brown," muzzle and orbital rings darker brown, an irregular whitish patch at the base of the whiskers. Arms and legs like body; metacarpals blackish brown mesially, digits and outer edge of metacarpals whitish; ankles and metatarsals blackish brown, toes lighter, but not conspicuously contrasted white. Tail black for its proximal, white for its terminal half, the contrast more marked than is usual in *gambianus*.

Skull similar to that of *C. gambianus*, but larger throughout, and with heavier molars.

Dimensions of the type (measured in the flesh) :—

Head and body 400 mm. ; tail 469 ; hind foot 78 ; ear 47.

Skull: greatest length 82 ; basilar length 67 ; zygomatic breadth 38 ; nasals 34×11.8 ; interorbital breadth 12 ; brain-case, breadth 26 ; palate length 40 ; diastema 25 ; palatal foramina 8.2 ; length of upper molar series 12.1 .

Typical locality. Pungo Andongo.

Type. Old male. B.M. no. 4. 4. 9. 91. Original number 39. Collected 9th June, 1903.

In its large size, unwhitened belly, and dark metacarpals this huge rat differs from any of the forms of the widely spread *C. gambianus*, and seems to represent a special Angolan species. The two forms of the group, no doubt synonymous with each other, from Landana described by Rochebrune* are both far smaller and have their bellies "albo-cinereis."

A comparison of the specimens of *C. gambianus* in the Museum shows that the typical form occurs from the Gambia down through the forest-region of West Africa to the Congo, and eastwards to Monbuttu. It is chocolate-brown along the dorsal area, paler on the sides, and with a sharply defined white belly. Further south, from the lake-region to Portuguese South-east Africa, it is replaced by a paler form, which may be called

Cricetomys gambianus viator, subsp. n.

Size and general characters as in *Mus gambianus*, but body-colour much paler, the back "wood-brown," scarcely darker along the spine. Under surface white, not quite so sharply defined as in *gambianus*. Tip of muzzle and orbital rings dark brown ; edges of upper lip white ; cheeks like flanks. Upper surface of hands white, the brown of the forearm ending on the wrists. Centre of metatarsals dark brown, the toes prominently contrasted white. Tail half blackish, half white, the two colours hardly so strongly contrasted as in *C. Ansorgei*.

Dimensions of the type (measured in skin) :—

Head and body (stretched) 415 mm. ; tail 370 ; hind foot 68 ; ear 44.

Skull: greatest length 73 ; basilar length 62 ; zygomatic breadth 35 ; nasals 31×11 ; interorbital breadth 11.3 ; palatal foramina 8.7 ; length of upper molar series 10.5 .

* *Cricetomys dissimilis* and *Mus tephurus*, Bull. Soc. Philom. (7) ix. pp. 86, 87 (1885).

Hab. (of type). Likangala, Nyasaland.

Type. Old male. B.M. no. 2. 1. 6. 33. Collected June 1901 and presented by Sir Alfred Sharpe, C.B.

28. *Arvicanthis dorsalis griselda*, subsp. n.

♂. 174; ♀. 175. Muene Coshi, Jinga Country.

Like the true southern *A. dorsalis* in all essential respects, but the colour is paler throughout, with less ferruginous suffusion; sides of head and flanks pale lined greyish with scarcely a tinge of buffy. Orbital rings and sides of muzzle pale yellowish, not ferruginous. Belly white.

Molars rather smaller than in the typical subspecies.

Dimensions of type (measured in flesh):—

Head and body 121 mm.; tail 135; hind foot 28; ear 14.

Skull: greatest length 31; basilar length 25; breadth of brain-case 12·5; palatal foramina 6·1; length of upper molar series 6·1; breadth of m^1 2·1.

Type. Adult, but not old, female. B.M. no. 4. 4. 9. 95. Original number 175. Collected 26th September, 1903.

The present is the furthest towards the north-west that *A. dorsalis* has been recorded, and, considering the great distance from the Cape, it is not surprising that there should be a difference in colour worthy of subspecific recognition.

On the eastern side of Africa *A. dorsalis* goes slightly farther north, but there, instead of being more pallid, the colours are intensified, while the reduction in the size of the molars is carried to an extreme. This eastern form may be called

Arvicanthis dorsalis rosalia, subsp. n.

Essential characters of true *dorsalis*, but the colours strong and dark, a large proportion of the rump strong ferruginous; sides of muzzle, orbital rings, and ears rich rusty.

Skull small and narrow, the molars conspicuously weaker than in the typical form.

Dimensions of the type:—

Head and body (in skin) 119 mm.; hind foot (wet) 28; ear (wet) 15.

Skull: back of interparietal to tip of nasals 31; zygomatic breadth 14·2; interorbital breadth 4·4; brain-case, breadth 12·7; palatal foramina 6·5; length of upper molar series 5·6; breadth of m^1 1·7.

Hab. Monda, Nguru Mountains, German East Africa.

Type. Adult female. B.M. no. 90. 6. 8. 28. Presented by Emin Pasha.

29. *Arvicanthis pulchellus*, Gray.

♂. 63. Pungo Andongo.

♂. 157, 185; ♀. 150, 181, 182, 186. Braganza.

♂. 177. Marimha, Jinga Country.

30. *Pelomys campanæ*, Huet.

♂. 4. Ambaca.

♂. 35, 36, 118, 119; ♀. 37, 130. Pungo Andongo.

♂. 149, 161. Braganza.

Type locality. Landana, Lower Congo.31. *Pelomys frater*, sp. n.

♂. 168; ♀. 154, 167. Braganza.

A darker-bellied form than *P. campanæ*. Molars larger.

General colour above of the usual iridescent dark yellowish olive; no dorsal stripe. Sides rather more buffy. Under surface dirty greyish buffy, the hairs dark slaty for two thirds their length, buffy at tips; line of demarcation on sides not sharply defined, the upper and lower colours passing quite gradually into each other. Head rather greyer than body; sides of muzzle and orbital rings not prominently buffy; ears dark brown, a ferruginous spot at their anterior bases. Limbs like body; upper surface of hands and feet grey, not fulvous. Tail shorter than in *P. campanæ*, black above, dull whitish below.

Skull much as in *P. campanæ*, the palatal foramina rather shorter and the bullæ larger.

Incisors thick and powerful. Molars very broad and heavy, conspicuously larger than in *P. campanæ*.

Dimensions of the type (measured in the flesh):—

Head and body 139 mm.; tail 136; hind foot 31; ear 20.

Skull: greatest length 32; basilar length 25·7; zygomatic breadth 15·5; nasals 11·7; interorbital breadth 4·7; breadth of brain-case 14; diastema 8; palatal foramina 5·8; length of upper molar series 6·8; breadth of m^1 2·5.

Hab. Braganza.

Type. Male. B.M. no. 4.4. 9.107. Original number 168. Collected 6th August, 1903.

It is interesting to find two forms of *Pelomys* inhabiting the same region, but there can be no question as to the distinction of *P. frater* from *P. campanæ*. Pousargues's *P. Dybowskii*, from French Congo, is a very much larger species than either (hind foot, c. u. 38; molars 8·5 mm.).

32. *Dasymys* sp. (probably *nudipes*, Pet.).

♀. 159. Braganza.

33. *Ænomys* (g. n. *) *hypoxanthus* *Anchietæ*, Bocage.*Mus Anchietæ*, Bocage (the male only).

♂. 24. 93. 98; ♀. 25. Pungo Andongo.

The "*Mus Anchietæ*" of Bocage is clearly a member of the *hypoxanthus* group, but is separable from the Gaboon form by its rather lighter colour, in which respect it approaches my *Æ. h. unyori* †. From this latter it is distinguished by the lesser extension of the rufous over the back and the less wholly red feet.

With regard to the general position of the *hypoxanthus* group, further consideration convinces me that the molars are so peculiar that it ought not any longer to be included in *Mus*, and I therefore suggest a special generic name for it. A good account of its dentition, with figures, has been given by Tullberg ‡, and in Bocage's paper there is also a photograph of the under aspect of the skull. The characters of *Ænomys* would be as follows:—

General structure as in *Mus*, but the molars very broad, rounded, with peculiarly prominent cusps; the individual cusps separated by deep antero-posterior grooves from each other, so that the essential laminate structure of the molars is lost. M^1 and m^2 each with a large antero-internal supplementary cusp and small antero-external one. M^3 with very large antero-internal supplementary and main internal cusps, but the external ones, both supplementary and main, almost or quite obsolete.

34. *Mus Bocagei*, sp. n.

♂. 19, 30, 78, 86, 128; ♀. 21, 27, 43, 59. Pungo Andongo.

A large pale brown rat, with white belly and feet; mammae 0—2=4.

General colour pale brown, resulting from a mixture of blackish and clay-colour; sides greyer; belly white, fairly sharply defined, the hairs slaty grey at their bases only. Head like body, orbital rings darker. Ears of medium length, brown. Outer side of limbs like body, inner like

* *Ænomys*, g. n. Type *Mus hypoxanthus*, Pucheran.

† Ann. & Mag. Nat. Hist. (7) xii. p. 343 (1903).

‡ N. Act. Upsala, (3) xvi. Art. xii. p. 26 (1893).

belly; upper surface of hands and feet pure white. Tail about the length of the head and body, practically naked, the few fine hairs about one scale in length; scales coarse, about nine rings to the centimetre; colour uniformly brown. Mammaræ 0—2=4, all close together near the vulva.

Skull long, well-ridged, the ridges not sharply divergent; palatal foramina long, rather narrow, reaching back to the level of the first lamina of m^1 . Bullæ of medium size, smaller than in *M. Hindei* and *Thomasi*, much larger than in *M. sebastianus*.

Teeth rather light, the molars much narrower than the palate between them.

Dimensions of the type (measured in the flesh):—

Head and body 191 mm.; tail 189; hind foot 35; ear 28.

Skull: greatest length 41; basilar length 32.2; zygomatic breadth 20; nasals 15.5; interorbital breadth 6; breadth between ridges on parietals 13; diastema 11; palatine foramina 8.7; length of bulla 7; length of upper molar series 6.2.

Hab. Pungo Andongo. Alt. 1200 m.

Type. Male. B.M. no. 4. 4. 9. 62. Original number 128. Collected 13th September, 1903.

This fine species may be readily recognized by its size, nearly naked large-scaled tail, white belly and feet, and unusual mammary formula.

An example of it seems to have been the "*Femina: coloribus pallidioribus. Mammaræ quatuor inguinales*" of Bocage's *Mus Anchietae*, but the male and all other parts of the description refer to an *Ænomys* (see above).

I have great pleasure in dedicating this species to my friend Prof. Barboza du Bocage, of Lisbon, to whom I am much indebted for help, and in whose many papers almost the whole of our knowledge of Angolan mammals is enshrined.

35. *Mus avunculus*, sp. n.

♂. 49. Pungo Andongo.

Like *M. angolensis*, but larger, with white belly and more hairy tail.

General colour above pale fawn-grey, about as in *M. angolensis*, but the rump distinctly redder (dull "ochraceous buff"). Under surface, from chin to anus, pure white, the hairs white to their roots. Head clearer grey, without buffy suffusion. Ears of medium size, grey. Upper surface of hands and feet pure white. Tail distinctly ringed (ten rings to the centimetre), almost naked basally, the rings there obvious, but terminally the hairs increase in length, hiding the scales on the

last inch, and forming a slight pencil at the tip, where they are about 2 mm. in length; colour pale brown, rather lighter proximally below. Mammæ unknown.

Skull very like that of *M. angolensis*, but larger; anterior edge of zygomatic plate slightly concave.

Dimensions of the type (measured in skin):—

Head and body 136 mm.; tail 176; hind foot 28; ear 19.

Skull: greatest length 34; basilar length 25.5; nasals 15; interorbital breadth 4.6; diastema 8.5; palatal foramina 7.8; length of upper molar series 5.2.

Hab. Pungo Andongo. Alt. 1200 m.

Type. Old male. B.M. no. 4. 4. 9. 67. Original number 49. Collected 14th June, 1903.

This rat looks at first sight like a diminutive relative of *Mus Bocagei*, but it would seem on the whole more related to *M. angolensis*, from which it differs by its reddish rump, white belly, more hairy tail, and longer feet. If this view of its affinities is correct, its mammary formula should prove to be $3-2=10$.

36. *Mus angolensis*, Boc.

♂. 47, 87; ♀. 114, 117. Pungo Andongo.

This is the Angolan representative of the widely distributed rat with $3-2=10$ mammæ, otherwise so like the multimammate form. It appears to have, however, broader posterior nares than the latter.

37. *Mus* sp. (multimammate).

♂. 79, 103, 106, 116; ♀. 67, 111, 115. Pungo Andongo.

38. *Mus arborarius*, Peters.

♂. 107, 121; ♀. 90. Pungo Andongo.

39. *Mus carillus*, sp. n.

♂. 33, 50, 61, 82, 113; ♀. 26, 65, 85. Pungo Andongo.

A small buffy mouse, with long tail, similar to *M. Alleni*. Mammæ $1-2=6$.

Size small, form delicate, with slender feet and long thin tail. Fur soft and fine, hairs of back about 6-7 mm. in length. General colour above buffy fawn, varying very much in tone and brightness according to age and state of development, some of the younger specimens near "cinnamon," older ones almost "ochraceous." Under surface greyish

white, the hairs slaty for their basal two thirds, white terminally. Outer side of limbs like sides, inner side like belly; hands white from wrists; ankles inconspicuously brown, upperside of feet white; fifth toe reaching to the end of the second phalanx of the fourth. Tail long, slender, thinly and fairly haired, scarcely pencilled at end, uniformly pale brown; rings of scales very fine, about sixteen or seventeen to the centimetre. Mammæ 1—2=6.

Skull low and broad, with a large brain-case and small muzzle; supraorbital edges square, but not markedly beaded, the faint ridges disappearing halfway across the parietals; palatal foramina not very widely open, reaching back to the level of the front of m^1 ; palate ending squarely just behind m^3 ; bullæ small.

Dimensions of the type (measured in the flesh):—

Head and body 96 mm.; tail 146; hind foot 20; ear 16.

Skull: greatest length 26; basilar length 20; zygomatic breadth 12·5; nasals 9; interorbital breadth 4·5; breadth of brain-case 11·2; height of brain-case 7·5; palate length 11; diastema 6·6; palatal foramina 4·7; length of upper molar series 4·0.

Hab. Pungo Andongo. Alt. 1200 m.

Type. Old female. B.M. no. 4. 4. 9. 74. Original number 65. Collected 20th June, 1903.

Even apart from the number of its mammæ this pretty mouse is readily distinguishable from *Mus Alleni*, the only species with which it could be compared, by its much paler colour and its wholly white feet.

40. *Lophuromys sikapusi*, Temm.

♂. 162. Braganza.

41. *Dendromys* sp.

♂. 213. Golungo Alto.

A striped species whose identity with the southern *D. mesomelas* and *melanotis* I am at present unable either to affirm or deny.

42. *Steatomys Bocagei*, Thos.

♂. 133, 135, 137, 164, 165; ♀. 132, 155. Braganza.

43. *Georychus Mechowi*, Peters.

♂. 152, 153, 170, 178; ♀. 169. Braganza.

44. *Georychus Bocagei*, de Wint.

♂. 142, 151, 160, 189, 190, 191. Braganza.

♂. 12. Ambaca.

♂. 129. Pungo Andongo.

45. *Lepus angolensis*, sp. n.*Lepus ochropus*, Bocage, nec Wagner.

♀. 3, 7, 11. Ambaca.

♀. 15. Pungo Andongo.

A dark strongly coloured species, with rufous neck; enamel foldings of incisors peculiar.

General colour above dark, a dark clay-colour grizzled with blackish, the hairs with a subterminal band of dark buffy and black tips; sides rather paler. Centre of face dark lined buffy, a white frontal spot generally present. Sides of muzzle whitish and a narrow orbital ring of the same colour; an indistinct patch below the front of the eye blackish. Nape bright rufous, near "tawny ochraceous" of Ridgway. Ears of medium length; anterior part of external surface dark lined greyish; the fringing hairs dark buffy; tips edged with black; outer margin white basally, becoming buffy terminally. Chin and interramia white, throat dull buffy; belly white, not sharply defined laterally. Fore limbs dull cinnamon, a narrow line on the inner side of the forearms white. Hind limbs similar, their inner surfaces more broadly white. Tail of medium length, black above, white on sides and below.

Skull in its general proportions not unlike that of *L. Whytei*, Thos., of medium length, stoutly built, without noticeable peculiarities.

Incisors with the involution of the enamel about as in *L. Whytei**, the groove practically filled up with cement.



Section of upper incisors of *Lepus angolensis*.

But, in addition to the main involution, there is a further and peculiar complexity in the presence of a fine thread (as seen in section), apparently of enamel, passing backwards and

* Figured by Forsyth Major, Tr. Linn. Soc., Zool. vii. p. 468, figs. xi & xiii. (1899).

outwards from the middle of the antero-internal peninsula towards the centre of the main dentine area of the tooth, dying away about halfway across to the hinder margin. This additional complexity of the incisive section has not been hitherto noticed in any hare.

Dimensions of the type (measured in the flesh):—

Head and body 390 mm.; tail 90; hind foot 115; ear 115.

Skull: back of parietals to tip of nasals 78; basilar suture to lenselion 55; zygomatic breadth 39; nasals, length diagonally 34, greatest breadth 18; interorbital breadth 20; diastema 23; breadth of palatal bridge 7; palatal foramina 21×9 .

Hab. (of type). Ambaca. Alt. 800 m.

Type. Adult female. B.M. no. 4. 4. 9. 140. Original number 7. Collected 29th April, 1903.

The Angolan hare was referred by Prof. Bocage to *Lepus ochropus*, Wagn., but that is the yellow-naped High Veldt representative of *L. capensis* *. Jentink's *L. sake*, from Mossamedes, is a far paler form, with much shorter tail.

Probably *L. angolensis* is most nearly allied to the Zambesian *L. Whytei*, but differs from that as from all other species by the unusual complexity of its upper incisors.

46. *Procavia Bocagei*, Gray.

♀. 51 (imm.). Pungo Andongo.

XLIX.—On *Felis ocreata*, better known as *Felis caligata*, and its *Subspecies*. By HAROLD SCHWANN.

THE first account of this cat appears in Bruce's 'Travels to Discover the Source of the Nile' †, under the name of the "Booted Lynx," and, with the exception of the exaggeration of the ear-tufts in the plate, appears to be a very accurate description.

In 1791 E. W. Cuhn published at Leipzig a German translation of the 'Travels,' with a zoological appendix by J. F. Gmelin, where the latter distinctly gives the name of *Felis ocreata* ‡ to Bruce's specimen.

F. ocreata therefore stands as being the earliest technical name of the species.

* Cf. Ann. & Mag. Nat. Hist. (7) xii. p. 344 (1903).

† Vol. v. p. 146 (1790).

‡ Anh. Bruce Reisen, Gmel. p. 27 (1791).